United Nations A/67/317

General Assembly

Distr.: General
17 August 2012

Original: English

Sixty-seventh session
Item 20 (h) of the provisional agenda*
Sustainable development

Harmony with Nature

Report of the Secretary-General

Summary

The present report is submitted pursuant to the request of the General Assembly in its resolution 66/204. As also requested by the Assembly in that resolution, on 18 April 2012 the Secretary-General convened the second interactive dialogue on Harmony with Nature to commemorate International Mother Earth Day and to contribute, actively and effectively, to the preparatory process for the United Nations Conference on Sustainable Development, which was held in Rio de Janeiro, Brazil, from 20 to 22 June 2012. The report focuses on the evolving relationship of humankind with nature and draws upon key issues discussed at the interactive dialogue, particularly in the area of science and economics. Concrete recommendations are provided to facilitate further consideration of the theme by Member States.

* A/67/150.

12-46756 (E) 210912

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I. Introduction

1. The General Assembly, by its resolution 66/204, entitled "Harmony with Nature", requested the Secretary-General to convene, during its sixty-sixth session, an interactive dialogue, to be held in a plenary meeting of the Assembly in commemoration of International Mother Earth Day in April 2012, with the participation of Member States, United Nations organizations, independent experts and other stakeholders, in order to make an effective contribution to the preparatory process of the United Nations Conference on Sustainable Development, held in Rio de Janeiro, Brazil, from 20 to 22 June 2012.

2. The interactive dialogue of the General Assembly examined how human activity has impacted the Earth system by focusing, in particular, on areas where such impacts have already affected the regenerative capacity of the planet. The dialogue enabled an exchange of ideas and experiences from multiple perspectives, with particular emphasis on the contributions of science and economics. The present report is based on the issues addressed at the dialogue.

3. A concrete result of the contribution of the Harmony with Nature process in advancing sustainable development is its recognition in the outcome document of the United Nations Conference on Sustainable Development, "The future we want" (resolution 66/288), which was adopted by the General Assembly on 27 July 2012. Living in harmony with nature implies an equitable and balanced relationship with the Earth, humanity's source and sustenance. At the core of that relationship lies both a profound respect for the Earth and an acknowledgement of the vital imperative that the planet continue to exist and thrive, as well as an acceptance of humanity's responsibility to restore the health and integrity of the Earth system. This renewed recognition of the relationship between humankind and the Earth reaffirms that human existence is inextricably part of nature, and sets a path towards action based on that belief. Accordingly, the outcome document noted that some countries recognize the rights of nature in the context of the promotion of sustainable development. It also recognized that Mother Earth is a name for our planet common throughout the world.

Harmony with Nature website

4. In its resolution 66/204, the General Assembly also requested the Secretary-General to continue making use of the existing information portal on sustainable development, which is maintained by the secretariat of the United Nations Conference on Sustainable Development and the Division for Sustainable Development of the Department of Economic and Social Affairs, to gather information and contributions on ideas and activities to promote a holistic approach to sustainable development in harmony with nature being undertaken to advance the integration of scientific interdisciplinary work, including success stories on the use of traditional knowledge, and existing national legislation. The dedicated Harmony with Nature website was launched at the Conference and can be accessed at www.harmonywithnatureun.org.[1]

5. The Harmony with Nature website contains an overview of national laws, highlighting the presence of the environment in constitutions around the world.

[1] See also resolutions 65/164 and 66/204.

Each country page displays relevant passages of national legislation, including national constitutions, containing specific references to the environment and provides a quick snapshot of when the environment was first introduced in each country's constitution. In instances where the environment is not addressed in the constitution, the overview references the introduction of the most appropriate environmental statute(s).

6. Given the vast number and the length of the environmental statutes and constitutional provisions enacted by Member States over the years, the objective of the website is not to reproduce all pieces of such legislation, but to focus on the centrepieces of national environmental law. The site provides an overview of the evolution of environmental consciousness worldwide and information with regard to the legal steps that have been undertaken in the path towards sustainable development.

7. Pursuant to General Assembly resolution 66/204, the following sections draw upon key issues discussed at the interactive dialogue on Harmony with Nature, particularly in the areas of science and economics.

II. Human interaction with the Earth

8. The entire history of our species has taken place in the geological period traditionally called the Holocene, a relatively brief interval in the history of the planet, stretching back 10,000 years. During that time, humankind has influenced every aspect of the Earth's environment on a massive scale. Almost all of the planet's ecosystems bear the marks of our presence.

9. There are many well-known aspects of humanity's influence on the environment, and among the most prominent is climate change. The deforestation of vast tracts of land, in some cases nearly entire continents, means that great quantities of soil are being eroded and swept away; rich grasslands are turning to deserts; ancient ice formations are melting away; and species are being pushed towards extinction. Nutrients from fertilizers wash off fields and down rivers, creating stretches of sea where nothing grows except vast algal blooms. Atmospheric carbon dioxide may be at its highest level in 15 million years.

10. A growing number of scientists have advanced the concept that we have entered a new geological epoch that needs a new name, the Anthropocene. The Anthropocene is a term that has been widely used, particularly since the publication of an article by Paul Crutzen and Eugene Stoermer in 2000[2] to denote the present epoch, in which many geologically significant conditions and processes are being profoundly altered by human activity, including:

(a) The erosion and the shifting of sediments associated with a variety of anthropogenic processes, including colonization, agriculture, urbanization and global warming;

(b) The changing chemical composition of the atmosphere, oceans and soils, including significant man-made changes in the distribution of elements such as carbon, nitrogen, phosphorous and various metals;

[2] Crutzen, P. J., and E. F. Stoermer, "The Anthropocene", *Global Change Newsletter*, vol. 41 (2000).

(c) Environmental conditions generated by these perturbations, including global warming, ocean acidification and the spread of oceanic "dead zones";

(d) The change in the biosphere, both on land and in the sea, as a result of habitat loss, predation, species invasions and the physical and chemical changes noted above.[3]

11. These developments are all connected, and there is a risk of an irreversible cascade of changes that may lead us towards a future that is profoundly different from anything we have faced before. The following sections highlight key human activities that have led to the environmental conditions we now face.

A. Evolution of the massive and escalating human impact on the Earth

12. The Earth is over 4.5 billion years old. The last geological epoch, the Quaternary, included two epochs, the Pleistocene and the Holocene. The latter, by far the shortest in the geological timescale, began about 10,000 years ago, and was characterized by changes in climate that that can be traced in the ice core of Greenland.

13. The Holocene is the last of a series of interglacial climate changes that have punctuated the severe icehouse climate of the past 2 million years. It is distinguished as an epoch for practical purposes. Many of the surface bodies of sediment on which we live, the soils, river deposits, deltas and coastal plains, were formed during that time.

14. Among the earliest species of the genus *Homo* was *homo habilis*, a species whose origin has been traced to East Africa some 1 to 2 million years ago. Since that time, over centuries of evolution, human beings through the range of their activities, have made significant changes to the planet and its ecosystems. Such changes have been brought about through the use of brute force, supplemented at first by primitive tools, and later on by tools and technology of ever-increasing sophistication.

15. From the beginning of the Holocene epoch, evidence of human activities became more widespread, most notably with the rise of agriculture in the fertile crescent of the Middle East and in other areas of the world. The shift from a hunting to a hunting and cultivation form of civilization has left a clear fossil record in the pollen preserved in sedimentary successions of that time. In addition, it has been postulated that the clearance of forests, associated with the rise of agriculture, may have contributed to the elevation of carbon dioxide levels in the atmosphere long before the Industrial Revolution.

16. Following the revolution in agriculture during the Neolithic period, human beings began to live in settlements of increasing size, and by the third millennium B.C., during the Bronze Age, there were well-established and distinctive civilizations in Mesopotamia, the Nile Valley, the Indus Basin and along the Yellow River. In the following millennia, urbanized cultures spread throughout the tropical and temperate zones worldwide, with those established in Europe, Central and South

[3] International Commission on Stratigraphy, Subcommission on Quaternary Stratigraphy, Working Group on the Anthropocene (http://www.quaternary.stratigraphy.org.uk/workinggroups/anthropocene).

America and China being significantly advanced by the first millennium B.C. The rate of urbanization accelerated over time, with the first cities with populations of over 1 million possibly appearing in late medieval times. Today there are numerous cities with between 10 and 20 million inhabitants — and their number is rapidly continuing to grow.

17. Urbanization is a direct result of a global population explosion. Since 1800, when the world population was roughly 1 billion, it has risen to over 7 billion today, and it is projected to be 9 billion by 2050. Megacities are now the most visible expression of human existence on the planet, the characteristic feature of the Anthropocene epoch.

18. When the human population was small, its economic activity, even if locally damaging, had little effect on the integrity of the planet's life-support system. Plant and animal life was vast and resilient, and human use of such resources had relatively little effect on the overall functioning of the global ecosystem. But today, with over 7 billion people on the planet, and technology pushing global economies to vastly expanded dimensions, we are living in a period when the complex Earth system that supports life on the planet are being dismantled faster than they are being put together.

19. The human footprint may leave a more profound impact than the physical structures of the world's megacities. For example, the impact of atmospheric carbon dioxide on the oceans has already increased their acidity and stressed vast numbers of organisms that form the basis of many food chains, substantially changing marine ecosystems. This phenomenon has already led to a decline in global biodiversity, and it will leave evidence in the fossil record.

B. The Anthropocene: a new epoch in geological time

20. In 2000, the Nobel Prize-winning atmospheric chemist Paul Crutzen advanced the concept of the Anthropocene, already widely discussed within the scientific community, as the proper term to denote the current time period, during which many key processes are dominated by human influence. That concept has become a vivid expression for the degree of environmental change on Earth caused by humans, and it is currently under discussion by the International Commission of Stratigraphy as a potential formal unit of the geological timescale.

21. It is difficult to put a precise date on a transition that occurred at different times and at different rates in different places. Two pre-industrial events have been cited as marking the beginning of the Anthropocene. The first was the wave of extinctions of the Pleistocene megafauna. The second was the advent of agriculture, the so-called Neolithic revolution, early in the Holocene epoch.

22. The Industrial Revolution, which had its origins in the United Kingdom in the 1700s, marked the decline of agriculture as the dominant human activity and set the species on a far different trajectory from the one established during the Holocene epoch. It is clear that in 1750 the Industrial Revolution had barely begun, but by 1850 it had almost completely transformed the United Kingdom and had spread to other countries in Europe and worldwide. The widespread abandonment of the farm and the village for city life has undoubtedly been one of the great transitions in human development.

23. By the latter part of the eighteenth century the global effects of human activities had become clearly noticeable: data retrieved from glacial ice cores show the beginning of a growth in the atmospheric concentrations of several greenhouse gases, in particular carbon dioxide (CO_2) and methane (CH_4). That date coincides, not surprisingly, with James Watt's invention of the steam engine in 1784.

24. Mankind's growing influence on the environment was recognized as long ago as 1873, when geologist Antonio Stoppani spoke of a "new telluric force, which in power and universality may be compared to the greater forces of earth", referring to the "anthropozoic era". In 1926, V. I. Vernadsky, one of the founders of geochemistry, acknowledged the increasing impact of human consciousness and thought. Teilhard de Chardin, a French philosopher, and Vernadsky used the term "noösphere", the "world of thought", to mark the growing role of human intelligence in shaping our future and our environment.

25. George Perkins Marsh's influential *Man and Nature* is perhaps the first major work to focus on anthropogenic global change, while Stoppani coined the term "anthropozoic" to denote the time period.

26. For millennia, humans saw Nature as a challenge to be overcome. In the twentieth century, however, new technologies, fossil fuels and a fast-growing population resulted in a great acceleration in the human use of the planet's soil, forests and fish, which are now being consumed at a rate faster than they can be replenished, while greenhouse gases are increasing to dangerous levels in the atmosphere.

27. At the dawn of the twenty-first century, the effect of humanity on the planet include the unintentional, although not necessarily unknown, impact of, inter alia, the energy, manufacturing and transport sectors, which have resulted in air and water pollution, soil degradation and noise and electromagnetic pollution. There are also numerous intentional impacts, such as urban development, landscaping, large-scale agriculture, deforestation, and the damming of rivers.[4]

28. Such human impacts are embedded in the atmosphere, lithosphere, hydrosphere, cryosphere and biosphere. The effects of human activity are so numerous and dominant as to constitute an "Anthroposphere" that governs or disrupts the interconnected cycles and functions of the Earth's ecosystems. Endeavours to counteract these impacts that are being contemplated, especially "climate engineering", urgently need to be assessed, and relevant governance structures need to be developed. Through their collective impacts, humans have shaped, and continue to shape, the face of the Earth and its atmosphere on global spatial scales and geological timescales.[4]

29. There is a long-held viewpoint concerning human-environmental relationships, namely the human exemptionalism paradigm, in which human beings are seen as being separated from the environment, and as the masters of the planet.[5]

30. The historical origins of the doctrine have already been addressed in detail in the two previous reports of the Secretary-General on Harmony with Nature

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[4] Mark Lawrence, "The Anthropocene — Humans in the Earth System", second interactive dialogue on Harmony with Nature, April 2012 (www.harmonywithnatureun.org).

[5] R. E. Catton and W. R. Dunlap, "Environmental Sociology: A New Paradigm", *The American Sociologist*, vol. 13 (1978).

(A/65/314 and A/66/302). Today, scientists are admitting that this 300-year-old scientific doctrine is too simplistic and are finding that physical substances work and exist in terms of highly complex, interdependent, and changeable contexts and relationships. Scientists have therefore embraced a holistic view of the Earth system, in which all the elements are interconnected and changes in any one single element affects the functioning of the others in countless and, more often than not, in unknown ways.

III. Transformation to a life in harmony with nature

31. During the second scientific revolution of the twentieth and twenty-first centuries, many of the assumptions about the relationship between human and environmental systems in Newtonian physics, commonly referred to as classical mechanics, were challenged and effectively changed. Newtonian physics was not informed by the theories of quantum mechanics and relativity advanced by Albert Einstein, among others.

32. In the current scientific view, influenced by quantum mechanics, the cosmos is seen as a seamlessly interconnected and complex whole, in which everything is quite literally connected with everything else. Any sense we may have that the collections of particles we think of as our individual selves are isolated and alone is an illusion fostered by a lack of understanding of the nature of reality.[6]

33. In the current thinking in the field of biological science, the system of life on Earth is seen as being self-organizing on the molecular, cellular and embryological levels, and interactions between organisms regulate the levels of atmospheric gases and sustain conditions that perpetuate the existence of the whole. Feedback loops between proteins, lipids, nucleic acids, cells, tissues, organs and organisms modify the structures and functions of systems and ecosystems in response to changing conditions in the environment.[6]

34. New scientific theories also provide a new understanding of the human relationship with the environment. There is no basis in science for the assumption that our species is separate from and inherently superior to other life forms or that we have a privileged place and function in the cosmos. There is, however, a basis for believing that, as members of the human family and the commonwealth of life, we have a duty to use our foresight and empathy for their benefit.[6]

35. Institutions, academia, scientific, economics and civil society organizations are calling for a change in the way humankind relates to the Earth. First and foremost, they are calling for humanity to treat the Earth with respect. Such respect can only be achieved when humankind changes the way it perceives its relationship with nature. In addition, they are calling on human beings to see their role not as masters but as guardians of the Earth. Such a change is fundamental to the survival of our species at all levels, environmental, social and economic, and it is imperative that we bring about a shift in ourselves and our role in the world.

36. Scientists and scholars in fields such as environmental sociology, ecological economics and law believe that the remarkable scientific changes and developments of the last two centuries are virtually absent from the framework of contemporary

[6] Capital Institute, "Economics, Finance, Governance and Ethics for the Anthropocene", working paper of the Third Millennium Economy (3ME) project, June 2012.

economics. They hold the view that the current economic system rests comfortably on the human exemptionalism paradigm and operates on the assumption that the Earth belongs to humans and that the environment is a subset of the human economy.

37. However, since the early 1960s, both scientists and scholars in other fields have been reminding us that such assumptions are at odds with scientific reality. Humankind and its economic goals must be seen as a part of the Earth system, as part of an integrated whole, rather than as a separate entity, divided from the planet and its changing environment. Humanity needs to recognize that it is time to serve the planet rather than using the planet to serve our economic goals. When science is taken into account, it is clear that damaging the environment to serve the needs of the human economy only serves to damage ourselves. In response policymakers have slowly started to consider concerted action to address the situation.

38. Economists, including ecological economists, have challenged the basic tenets of neoclassical economics and its purpose. Should the fundamental aim of economic theory continue to support the growth of extreme wealth for the few, which destroys overall social and ecological well-being, or should the economy transform itself to preserve and enhance the integrity, resilience and beauty of life, providing rich and fulfilling lives for all and promoting healthy ecologically balanced communities?

39. For the most part, educational systems have yet to adopt the theories being advanced by scientists and others who recognize that we are living in a new epoch. Students are still taught that we are living in the Holocene epoch, which began approximately 10,000 years ago at the end of the last ice age. Teaching students about the increasing negative impact that human behaviour has had on the Earth raises awareness of the issue and highlights the enormous responsibility that we have to live in harmony with nature.

40. The forbidding scope and expansion of the human impact on the planet has been put in a different context by many modern-day economists. Harmony with nature, in terms of economic theory, entails providing a scientific and ethical foundation for such an approach. Without basic laws of modern physics and ecology, limits to growth may be easily overlooked. Without an ethical foundation, principles of economics may easily be misapplied. For example, the principle of diminishing marginal utility has established that there is greater human benefit to be gained from poverty alleviation than from the increased consumption of goods and services by the already-wealthy. Yet, without an ethical foundation that reflects this fact, diminishing marginal utility may only lead producers (and advertisers) to cater to new markets in otherwise satiated societies.[7]

41. Properly grounded, a more ecologically informed economic system would provide clear rules for sustainability. For example, renewable resource extraction cannot exceed regenetive capacity; pollution overflows cannot exceed absorption capacity; neither extraction nor pollution can threaten essential ecosystem functions; and essential non-renewable resources cannot be depleted faster than the development of their substitutes.[7]

42. It is too often overlooked that economic growth, as currently defined, means increasing production and consumption of goods and services in the aggregate. It

[7] Joshua Farley, "Economics in Harmony with Nature and Science", second interactive dialogue on Harmony with Nature, April 2012 (www.harmonywithnatureun.org).

entails increasing population and/or per capita consumption as reflected in an increasing gross domestic product (GDP). In this way of thinking, the development of solar panels or other green products may not produce economic growth unless those activities increase production and consumption in the aggregate. In the aggregate, economic growth as indicated by increasing GDP is created at the competitive exclusion of non-human species. We are consuming our natural resources, including non-renewable resources, at a faster rate than their replenishment. Such growth in consumption is taking place despite technological progress and economies of scale, which serve only to maintain (if not exceed) the economic targets rather than ensuring the well-being of all.[8]

43. In mainstream economic terms, growth is measured not only in terms of benefits but also serves to measure the production of wealth. For example, pollution as an environmental negative is reflected as an economic benefit as a result of money spent on clean-up and environmental remediation. Thus pollution is shown as a positive indicator in GDP.[9] For societies to live in harmony with nature, the use of an instrument other than GDP is essential since that measure is not designed as an indicator of environmental degradation resulting from human activity.[10] In this regard, the outcome document of the United Nations Conference on Sustainable Development, "The future we want", recognizes the need for broader measures of progress and well-being to complement GDP in order to better inform decision-making on policy. The United Nations will be working to launch a programme of work in this area, building on existing initiatives.[11]

44. Numerous scientists, economists and legal experts, as well as members of civil society, have decried the escalating destruction of the Earth's natural systems and called for a rights-based movement for nature in order to recognize our dependence on and interconnectedness with the natural world. They are also calling for society to listen to increasingly dire warnings regarding the environmental impacts of humanity's misguided behaviour patterns, which are grounded in the false assumption that the natural world is property to be manipulated for human benefit. In this regard, they have stressed the urgent need to change destructive economic policies that are wresting control of the natural world to build private wealth for the few at the expense of the many, insisting that the economy must be placed at the service of the greater well-being of human beings and the Earth itself.[12]

45. In such a system, the rule of law, science and economics would be grounded in concern for the Earth. As articulated by Thomas Berry in his publication *The Great*

[8] Brian Czech, "Steady State Economics for Harmonizing with Nature", second interactive dialogue on Harmony with Nature, April 2012 (www.harmonywithnatureun.org).

[9] Peter G. Brown and Geoffrey Garver, *Right Relationship: Building a Whole Earth Economy* (Berrett-Koehler), 2009.

[10] See A/65/314, resolutions 65/164 and 66/204.

[11] Resolution 66/288, para. 38.

[12] Vandana Shiva, statement on Harmony with Nature at the United Nations Conference on Sustainable Development; Peter G. Brown, *The Commonwealth of Life: Economics and Politics for a Flourishing Earth* (Black Rose Books), 2007; Cormac Cullinan, "Governing People for Earth: The Challenge of the Twenty-first Century, first interactive dialogue on Harmony with Nature, April 2011 (www.harmonywithnatureun.org); Riane Eisler, "The Real Wealth of Nations: Creating an Economics of Partnership", first interactive dialogue on Harmony with Nature, April 2011 (www.harmonywithnatureun.org); Linda Sheehan, Earth Law Center (http://earthlawcenter.org); Global Alliance for the Rights of Nature (www.therightsofnature.org).

Work, "there is a need for humans to develop reciprocal economic relationships with other life-forms, providing a sustaining pattern of mutual support, as is the case with natural life-systems generally". Berry was of the view that this type of effort would appropriately place the human being within the dynamics of the planet, and that it should be supported by a philosophy and a system of law that "provide[s] for the legal rights of the geological and biological as well as human components of the Earth community".

46. A key challenge in developing a global governance system built on the rule of ecological law is reinvigorating a transformed sense of democracy, in which individuals and communities embrace their ecological citizenship in the world and act on their responsibility to respect the complex workings of the Earth system. Such a democracy would reconnect people to the ecological foundations that sustain them, and would recognize and enable maintenance of those connections in good working order over the long term.

47. Up until now, accepted thinking about how the economy works only in conventional terms, for example, increasing monetary wealth, supply and demand, market dynamics and financial incentives, has side-stepped a basic scientific understanding of how the Earth system on which the world economy depends operate.

48. We must transform ourselves to sustain what can be called the "world organism", a term coined by Alexander von Humboldt 200 years ago to explain that humans are deeply interlinked with the richness of nature and calling on humankind to enhance its role as a part of the world organism, not at its cost.

49. It is important to highlight the extent to which the neoclassical economic paradigm negatively affects sustainable development and efforts to attain harmony with nature. An exclusive emphasis on profit-making can significantly compromise sustainable development through unsustainable consumption and production, an emphasis that is increasingly being supported through the use of techniques that probe the subconscious. One example of such an approach is the commercial application of the science of consumer psychology, a specialization that studies how our thoughts, beliefs, feelings and perceptions influence how we buy and relate to goods and services.

50. One formal definition of the field describes the science of consumer psychology as "the study of individuals, groups, or organizations and the processes they use to select, secure, use and dispose of products, services, experiences or ideas to satisfy needs and the impacts that these processes have on the consumer and society".[13] The study of consumer behaviour blends elements from psychology, sociology, social anthropology and economics. It studies characteristics of individual consumers such as demographics and behavioural variables in an attempt to understand people's wants. It also tries to assess the influence of family, friends, reference groups and society in general on the consumer.

51. To further assist producers in their understanding of how consumers react to products, the advancement of Neuromarketing, the study of the brain's responses to ads, brands, and the rest of the messages littering society, is increasingly gaining ground. Neuromarketing is being assisted by medical technology, including magnetic resonance imaging technology, which is used to generate images of

[13] See http://psychology.about.com/od/branchesofpsychology1/a/consumer-psychology.htm.

internal body structures and to detect electrical frequencies emitted by the brain. It is now being used to study how the brain responds to different visual stimuli in the design of consumer products.[14]

52. The raison d'être of such marketing techniques is derived from the fact that the brain expends only 2 per cent of its energy on conscious activity, with the rest devoted largely to unconscious processing. Neuromarketers believe that traditional market-research methods, such as consumer surveys and focus groups, are inherently inaccurate because the participants can never articulate the unconscious impressions that create the desire for certain products.

53. The technological issue that characterizes the new epoch may not be so much the generation of know-how, but rather the prudent identification of "know-what", namely the assessment of the technological choices available, and "know-why", a participatory analysis of the socioeconomic and environmental needs that technology must address. Social policy should be reintegrated with socioeconomic and environmental issues in order that we may decide on which issues require technological input, and which basic principles should guide our decisions. Can humanity as a whole truly afford large expenditures on research and development for the improvement of consumer goods? Or should our technological forces be directed towards restoring harmony with the atmosphere, hydrosphere and biosphere? Such questions fall under the rubric of technology and risk assessment, an area deeply intertwined with ecological economics.[15]

54. Despite the many constraints imposed by the current economic system, which prevent us from fully mobilizing for sustainable development, there are many people worldwide from different walks of life striving to teach and build awareness that we must change away from our current, heavily promoted and advertised hyper-consumption society, which is at the heart of our current global economic system. To accommodate our current lifestyle for all of the 9 billion people estimated to be alive by 2050, we would need several more planets. We must therefore redefine and transform our lives in meaningful ways in order to stop the deleterious impact we are having on the Earth and on ourselves, and work to achieve overall well-being for humanity and for the planet. To recall Mahatma Gandhi, "the Earth provides enough to satisfy every man's needs, but not every man's greed".

55. Therefore, to achieve harmony with nature, we require new thinking and a major cultural shift. Much of the suffering, hunger, poverty and violence challenging the world today is a symptom of the prevailing "domination paradigm". When combined with our highly developed technology, that paradigm is leading us beyond the capacity of the Earth system, and it is simply not sustainable.[16]

56. Scientists and scholars from different social branches have already predicted that unless there is a global catastrophe, human beings will remain a major environmental force in the foreseeable future. A daunting task lies ahead: societies worldwide must move beyond the current destructive way of living and challenge destructive government processes. This will require changes in human behaviour at

[14] http://www.pbs.org/wgbh/pages/frontline/shows/persuaders/etc/neuro.html.

[15] Pat Mooney, "Who Will Control the Green Economy", second interactive dialogue on Harmony with Nature, April 2012 (www.harmonywithnatureun.org).

[16] Riane Eisler, "The Real Wealth of Nations: Creating an Economics of Partnerships", first interactive dialogue on Harmony with Nature, April 2011 (www.harmonywithnatureun.org).

all levels, including changes in structures intentionally built to prevent humankind from moving towards a path of sustainable development. Transforming humankind means building a culture that works with the Earth instead of against it so that we can truly live in Harmony with Nature.

IV. Ethical basis for a relationship between humanity and the Earth

57. Our present situation can be summarized in the simple statement of the writer Thomas Berry: "in the twentieth century, the glory of the human has become the desolation of the Earth. And now, the desolation of the Earth is becoming the destiny of the human. Henceforth, the measure of all human institutions, professions, programmes and activities will be the extent to which they inhibit, ignore or foster a mutually enhancing human-Earth relationship".[17]

58. Scholars tell us that time has come to change from a neoclassical economic system, which is constantly being reaffirmed on unscientific assumptions about the dynamics of market systems deriving from neoclassical economic theory, to an economic system rooted in the science of the deeply interconnected mosaic of relationships between human and environmental systems.

59. This new economic approach must be taught and predicated on a different conception of value, one that implicitly recognizes that the ultimate value is preserving and protecting the health of the ecosystems that enable life to flourish on Earth.

60. Recent scientific advances highlight the need to carefully consider the long-term, aggregate impact of human activities on the Earth system that make up our environmental life support structure. Science also recognizes and teaches us that the Earth system is characterized by non-linear feedback and complex interactions between the living biosphere, including species and ecosystems, and physical processes.

61. It is understood that the climate system is not simply an atmospheric phenomenon as it involves exchanges of gases and energy between the atmosphere, the oceans, land masses and the lithosphere. Land and aquatic ecosystems not only provide many of the essential conditions and resources for sustainable life on the planet, such as fresh water and fertile soil, but are also tightly linked to processes and climate change on a global scale.

62. The protection of planetary life support systems is clearly a new category of scientifically defined goods and services that demand a new kind of governance response. It is of vital importance that such governance be based on non-market criteria.

63. Scientists and scholars from several fields, physics, economics, law, sociology, finance and governance, have acknowledged that, broadly speaking, our educational system still rests on outmoded assumptions that the Earth is a resource for our existing economic system. Similarly, many of our ethical beliefs and ethical principles misguidedly assume that humans are masters of, as opposed to being an integral part of, the life of the planet. This does not mean that all our existing moral beliefs must be discarded or overturned, but it does invite testing, adjusting and

[17] Thomas Berry, *The Dream of the Earth* (Sierra Club), 1988.

re-envisioning them in the same way that scientific assumptions have been tested, adjusted and re-envisioned over the centuries.

64. In 1500, scientists in Europe knew one thing for certain: the sun and the planets travelled around the Earth. People were educated to believe this, and all astronomy texts said so. In those times, the Earth was considered to be, both scientifically and metaphorically, at the centre of the Universe. In 1512, Copernicus determined that the Earth, long considered the immobile centre of the universe, moved around the sun.

65. Various scientific advances over the centuries have created a significant change in thinking, away from a reductionist and towards a holistic approach in the observation, perception and study of the Earth system and the role of human beings in the Universe. Scientists have been able to discern, retain and build upon the discoveries of the past that have assisted humankind in its understanding of the Universe and the role of humanity in it, and to establish that humanity is not part of a separate system made up of disparate parts, but part of an interconnected whole.

66. With regard to the current economic system, scientific findings inform us that humankind and the Earth system do not revolve around the axis of profit alone. The present economic system has not succeeded in overcoming the poverty afflicting over a billion people worldwide, nor has it ensured an equitable distribution of goods and services, nor has it been a good caretaker of the Earth system. The findings of science need to be applied to transform the economic paradigm to address pressing social and environmental challenges.

V. Conclusion

67. The time has come for new thinking to develop an economic system centred on the Earth and that includes the scientific advances of the last hundred years. A new economic system is needed that discerns, retains and builds upon areas and practices that allow people to create a sustainable society.

68. Such a new economic system needs to have at its core a profound respect for the Earth upon which humanity depends. The Earth has provided much to humankind and it is time for humankind to reciprocate.

69. In the words of Vaclav Havel, "Only humankind's understanding of its place in the universe will allow the development of new models of behaviour, scales of values and objectives in life and, through these means, to finally bind a new spirit and meaning to specific regulations, treaties and institutions".

70. The voices of many scientists, scholars, environmental lawyers, political activists, artists and citizens can echo, illustrate and enlarge upon the reflections contained in the present report. They are urging a vision of nature as the complex of living and non-living substance that constitutes the biosphere — the habitat of all life. They are calling upon us to stop considering nature as a collection of resources to feed the world's economy and to start considering nature as part of an integrated ecological system deriving from and existing in an infinite universe.[18]

[18] Barbara Baudot, statement by the Triglav Circle on Harmony with Nature, November 2011 (www.triglavcircleonline.org).

71. Although scientists have great insight about the physical reality of the world around us, they are nevertheless unable to predict more than a fraction of nature's behaviour. The humility that results from the recognition that our understanding of the world is only a small fraction of the actual scope of life and the universe gives renewed validity to earlier views on the importance of that "glimmer of reality" as it pertains to our well-being and our future on the planet. But even glimpses of reality, the awe they inspire and the respect they generate are better than ignorance, and they should give us reason for living in conformity with the nature that envelops all living creatures.[18]

73. To quote Chief Seattle (1780-1866), an indigenous leader and spokesman for ecological responsibility, "We often forget that we did not weave the web of life; we are merely a strand in it. Whatever we do to the web, we do it to ourselves". Our planet has a history, and a complex one, it took hundreds of millions of years for nature and humankind to form the habitable surroundings that we enjoy today. The accelerating expansion of technological power, combined with the explosive growth of the world population, together with unsustainable consumption and production patterns, present unparalleled challenges to our environment.[19]

73. We are at a perilous point where our knowledge, our powers and our numbers have caused extensive damage to the environment. The preservation of the habitability of our world hangs in the balance, and never in our lifetimes has more been required of diplomacy.[19] Humanity needs to address its place in the Universe and to set a new course for its future.

VI. Recommendations

74. **The significant impact of human activities on the Earth system has been widely acknowledged by the United Nations, the international and scientific community, major groups and other stakeholders worldwide. Drawing on the foregoing discussion, the interactive dialogues of the General Assembly on Harmony with Nature, the outcome of the United Nations Conference on Sustainable Development entitled, "The future we want", as well as the above analysis, Member States may wish to take into account the following recommendations:**

(a) **Draw on the Harmony with Nature approach outlined herein in their consideration of sustainable development policy issues at all levels;**

(b) **Ensure that policymaking in sustainable development is informed by the current scientific findings on the impacts of humanity on the Earth system;**

(c) **Showcase further, through the Harmony with Nature website, the work being undertaken in keeping with paragraph 40 of "The future we want" (resolution 66/288), in order to develop holistic and integrated approaches to sustainable development that will guide humanity to live in Harmony with Nature and lead to efforts to restore the health and integrity of the Earth system.**

[19] Owen Gingerich, "The Harmony of Nature", second interactive dialogue on Harmony with Nature, April 2012 (www.harmonywithnatureun.org).